

Space Weather Highlights
12 – 18 May 2008

SEC PRF 1707
20 May 2008

Solar activity was very low. Isolated low-level B-class flares were detected on 12 and 17 May.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit reached high levels during 12 - 14 May.

Geomagnetic field activity was at quiet levels. ACE solar wind measurements indicated no significant activity during the period. Solar wind velocities ranged from 279 to 430 km/sec. IMF Bz was variable in the +7 to -5 nT range. IMF Bt ranged from 1 to 7 nT during the period.

Space Weather Outlook
21 May – 16 June 2008

Solar activity is expected to be very low.

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to reach high levels during 22 - 28 May and 01 - 10 June.

Geomagnetic field activity is expected to be at minor storm levels on 21 May with major storm levels possible at high latitudes due to a recurrent coronal hole high-speed stream. Activity is expected to decrease to active levels on 22 May as coronal hole effects subside. Quiet to unsettled levels are expected during 23 May - 02 June. Activity is expected to decrease to quiet levels during 03 - 14 June. Activity is expected to increase to unsettled levels on 15 June as a recurrent coronal hole high-speed stream begins to affect the field. A further increase to active levels is expected on 16 June as the high-speed stream continues.



Daily Solar Data

Date	Radio Flux 10.7 cm	Sun spot No.	Sunspot Area (10 ⁻⁶ hemi.)	X-ray Background	Flares								
					X-ray Flux			Optical					
					C	M	X	S	1	2	3	4	
12 May	68	0	0	<A1.0	0	0	0	0	0	0	0	0	0
13 May	68	0	0	<A1.0	0	0	0	0	0	0	0	0	0
14 May	69	0	0	<A1.0	0	0	0	0	0	0	0	0	0
15 May	71	0	0	<A1.0	0	0	0	0	0	0	0	0	0
16 May	72	34	45	<A1.0	0	0	0	0	0	0	0	0	0
17 May	71	23	30	<A1.0	0	0	0	0	0	0	0	0	0
18 May	72	30	80	<A1.0	0	0	0	0	0	0	0	0	0

Daily Particle Data

Date	Proton Fluence (protons/cm ² -day-sr)			Electron Fluence (electrons/cm ² -day-sr)		
	>1 MeV	>10 MeV	>100 MeV	>.6 MeV	>2MeV	>4 MeV
	12 May	1.7E+6	1.8E+4	3.8E+3		9.4E+7
13 May	1.9E+6	1.7E+4	3.9E+3		5.2E+7	
14 May	2.1E+6	1.8E+4	4.3E+3		5.0E+7	
15 May	2.4E+6	2.0E+4	4.1E+3		4.3E+7	
16 May	1.6E+6	1.8E+4	4.0E+3		2.2E+7	
17 May	1.5E+6	1.8E+4	4.3E+3		2.8E+7	
18 May	2.0E+6	1.9E+4	4.5E+3		2.9E+7	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	12 May	3	1-0-1-1-0-1-1-2	2	1-1-0-1-0-0-1-1	4
13 May	3	2-2-0-0-1-1-1-0	2	1-2-0-0-1-1-1-0	4	2-2-0-0-1-2-1-1
14 May	1	0-1-0-0-1-1-0-0	1	0-1-0-0-0-0-1-0	3	1-1-0-0-1-0-1-1
15 May	2	0-1-0-1-1-1-1-1	2	0-2-0-1-0-0-1-1	4	0-1-1-0-1-1-1-2
16 May	3	1-0-0-1-1-2-1-1	4	2-1-0-1-3-1-1-1	4	2-1-1-1-2-1-1-1
17 May	1	1-0-0-1-1-0-0-0	0	1-0-0-0-0-0-0-0	2	1-0-0-0-1-1-0-1
18 May	2	0-1-0-1-2-0-1-0	2	1-1-0-1-1-0-0-0	3	1-1-0-1-2-1-0-1

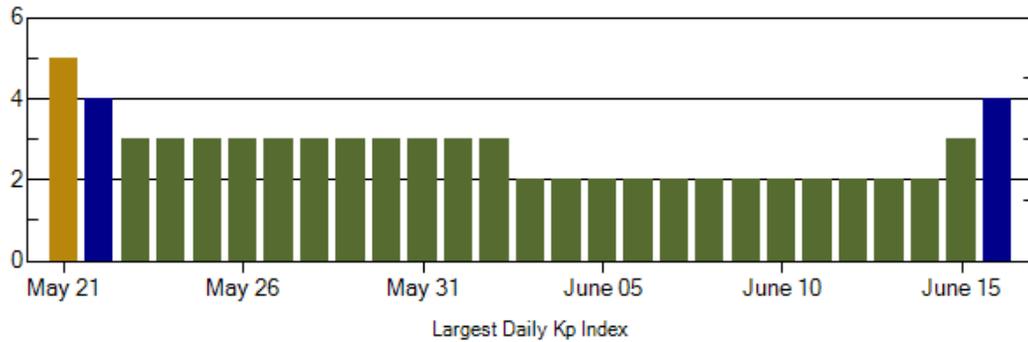
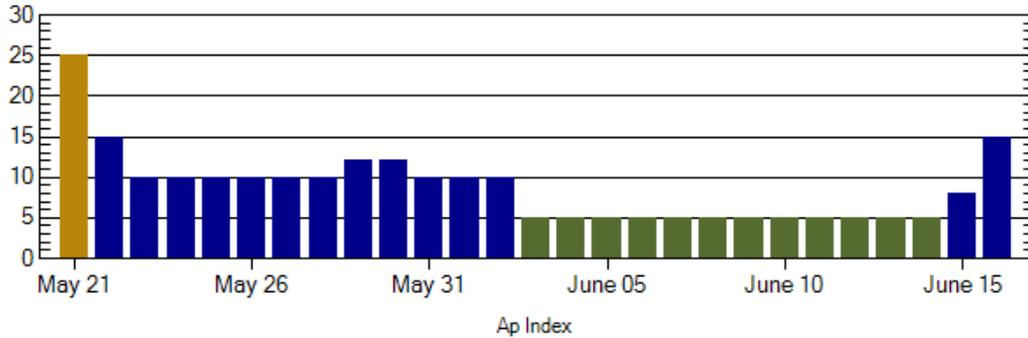
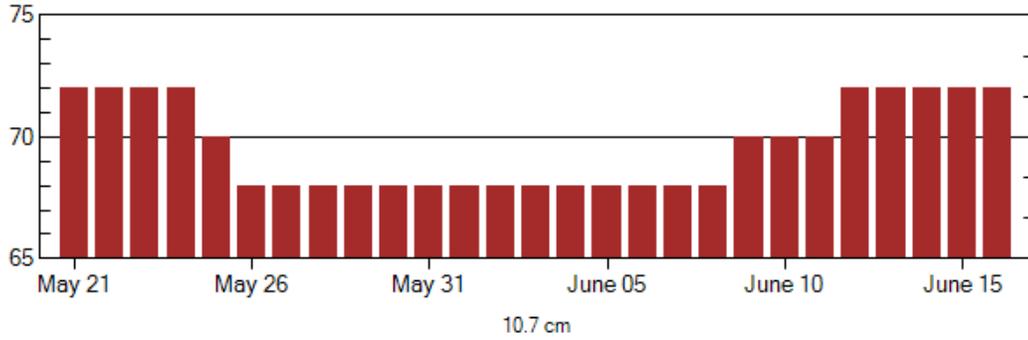


Alerts and Warnings Issued

Date & Time of Issue	Type of Alert or Warning	Date & Time of Event UTC
12 May 1022	ALERT: Electron 2MeV Integral Flux >1000pfu	12 May 1000
13 May 1717	ALERT: Electron 2MeV Integral Flux >1000pfu	13 May 1700
14 May 1526	ALERT: Electron 2MeV Integral Flux >1000pfu	14 May 1510



Twenty-seven Day Outlook



Date	Radio Flux 10.7 cm	Planetary A Index	Largest Kp Index	Date	Radio Flux 10.7 cm	Planetary A Index	Largest Kp Index
21 May	72	25	5	04 June	68	5	2
22	72	15	4	05	68	5	2
23	72	10	3	06	68	5	2
24	72	10	3	07	68	5	2
25	70	10	3	08	68	5	2
26	68	10	3	09	70	5	2
27	68	10	3	10	70	5	2
28	68	10	3	11	70	5	2
29	68	12	3	12	72	5	2
30	68	12	3	13	72	5	2
31	68	10	3	14	72	5	2
01 June	68	10	3	15	72	8	3
02	68	10	3	16	72	15	4
03	68	5	2				



Energetic Events

Date	Time		X-ray	Optical Information			Peak		Sweep Freq
	Begin	Max	Integ	Imp/	Location	Rgn	Radio Flux		Intensity
			Class	Flux	Lat	CMD	#	245	2695

No Events Observed

Flare List

Date	Time			Optical	Imp / Brtns	Location	Rgn
	Begin	Max	End	X-ray Class.		Lat	
12 May	1657	1702	1706	B1.4			
	2127	2131	2135	B1.4			
13 May	No Flares Observed						
14 May	No Flares Observed						
15 May	No Flares Observed						
16 May	No Flares Observed						
17 May	1005	1016	1032	B1.7			
18 May	No Flares Observed						

Region Summary

Date	Location		Sunspot Characteristics										
	Helio		Flares					X-ray		Optical			
	(° Lat ° CMD)	Lon	Area (10 ⁶ hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	C	M	X	S	1	2

Region 993

04 May	S29E27	086	0010	03	Bxo	003	B						
05 May	S31E14	085	0020	04	Bxo	005	B						
06 May	S31E01	085											
07 May	S31W12	085											
08 May	S31W25	085											
09 May	S31W38	085											
10 May	S31W51	085											
11 May	S31W64	085											
12 May	S31W77	085											
13 May	S31W90	085											

0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 085



Region Summary-Continued

Location		Sunspot Characteristics						X-ray			Optical		
Date	(° Lat ° CMD)	Helio	Area (10 ⁻⁶ hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	C	M	X	S	1	2
		Lon											

Region 994

16 May	S11E04	310	0015	01	Axx	001	A						
17 May	S09W09	310											
18 May	S12W22	310	0050	04	Bxo	006	B						

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 310

Region 995

16 May	N12E22	292	0010	01	Axx	001	A						
17 May	N11E09	292	0010	04	Axx	001	A						
18 May	N11W04	292											

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 292

Region 996

16 May	N13E59	255	0020	06	Bxo	002	B						
17 May	N10E46	255	0020	05	Bxo	002	B						
18 May	N10E32	256	0030	04	Bxo	004	B						

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Still on Disk.

Absolute heliographic longitude: 256



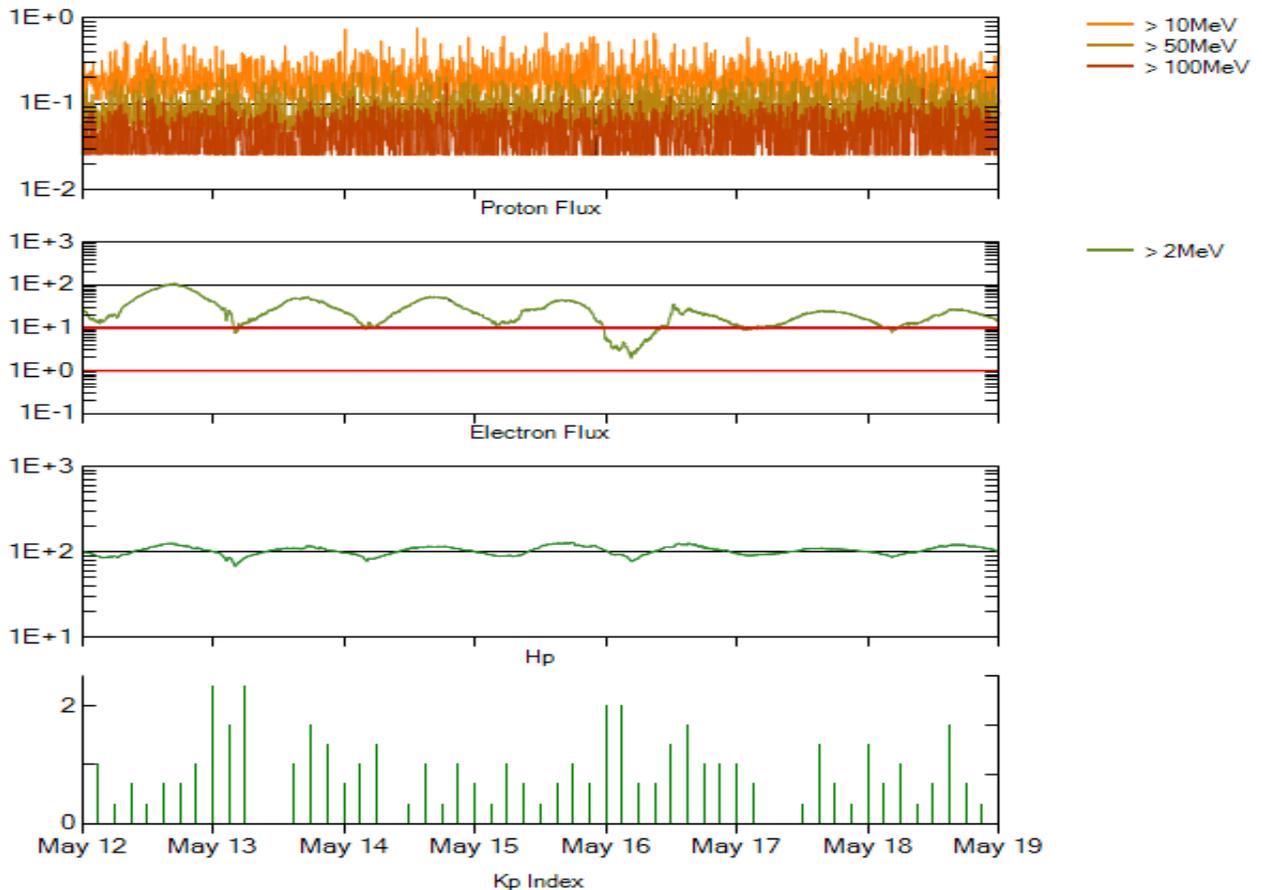
Recent Solar Indices (preliminary)
Of the observed monthly mean values

Month	Sunspot Numbers			Radio Flux		Geomagnetic			
	Observed values SEC	Ratio RI	Ratio RI/SEC	Smooth values SEC	Smooth values RI	*Penticton 10.7 cm	Smooth Value	Planetary Ap	Smooth Value
2006									
May	39.6	22.2	0.56	30.7	17.3	81.0	80.8	8	7.9
June	37.7	13.9	0.37	28.9	16.3	80.1	80.6	9	8.3
July	22.6	12.2	0.54	27.2	15.3	75.8	80.3	7	8.7
August	22.8	12.9	0.57	27.6	15.6	79.0	80.3	9	8.7
September	25.2	14.5	0.58	27.7	15.6	77.8	80.2	8	8.7
October	15.7	10.4	0.66	25.2	14.2	74.3	79.4	8	8.6
November	31.5	21.5	0.68	22.3	12.7	86.4	78.5	9	8.5
December	22.2	13.6	0.61	20.7	12.1	84.3	77.9	15	8.5
2007									
January	26.6	16.9	0.64	19.7	12.0	83.5	77.5	6	8.4
February	17.2	10.6	0.62	18.9	11.6	77.8	76.9	6	8.4
March	9.7	4.8	0.49	17.5	10.8	72.3	76.0	8	8.4
April	6.9	3.7	0.54	16.0	9.9	72.4	75.2	9	8.5
May	19.4	11.7	0.60	14.2	8.7	74.5	74.2	9	8.4
June	20.0	12.0	0.60	12.8	7.7	73.7	73.2	7	7.8
July	15.6	10.0	0.64	11.6	7.0	71.6	72.5	8	7.4
August	9.9	6.2	0.63	10.2	6.1	69.2	71.8	7	7.6
September	4.8	2.4	0.50	9.9	5.9	67.1	71.5	9	7.8
October	1.3	0.9	0.70	10.0	6.1	65.5	71.5	9	7.9
November	2.5	1.7	0.68			69.7		5	
December	16.2	10.1	0.62			78.6		4	
2008									
January	5.1	3.4	0.67			72.1		6	
February	3.8	2.1	0.55			71.2		9	
March	15.9	9.3	0.58			72.9		10	
April	4.9	2.9	0.59			70.3		9	

NOTE: All smoothed values after September 2002 and monthly values after March 2003 are preliminary estimates. The lowest smoothed sunspot index number for Cycle 22, RI = 8.0, occurred in May 1996. The highest smoothed sunspot number for Cycle 23, RI= 120.8, occurred April 2000.

*After June 1991, the 10.7 cm radio flux data source is Penticton, B.C. Canada. Prior to that, it was Ottawa.





*Weekly Geosynchronous Satellite Environment Summary
Week Beginning 12 May 2008*

Protons plot contains the five-minute averaged integral proton flux (protons/cm²-sec -sr) as measured by GOES-11 (W135) for each of three energy thresholds: greater than 10, 50, and 100 MeV.

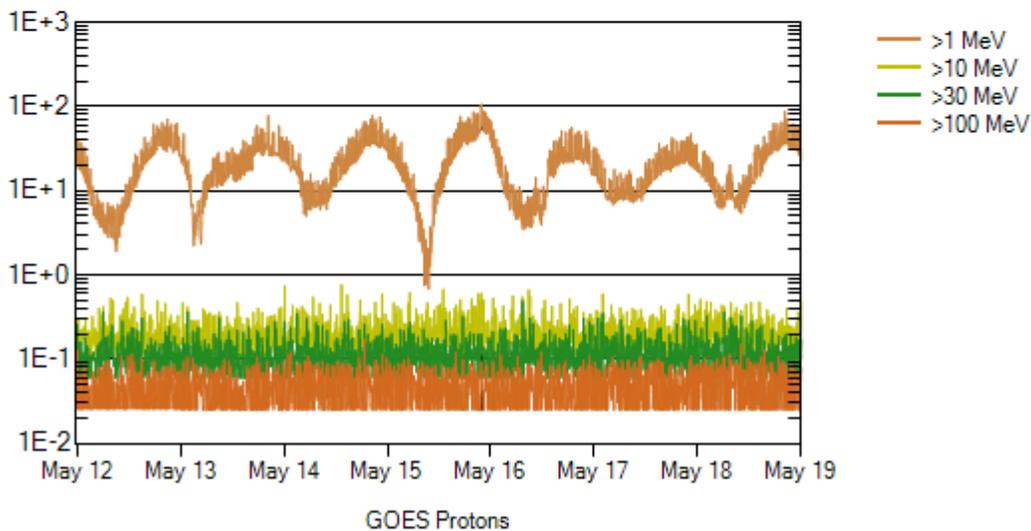
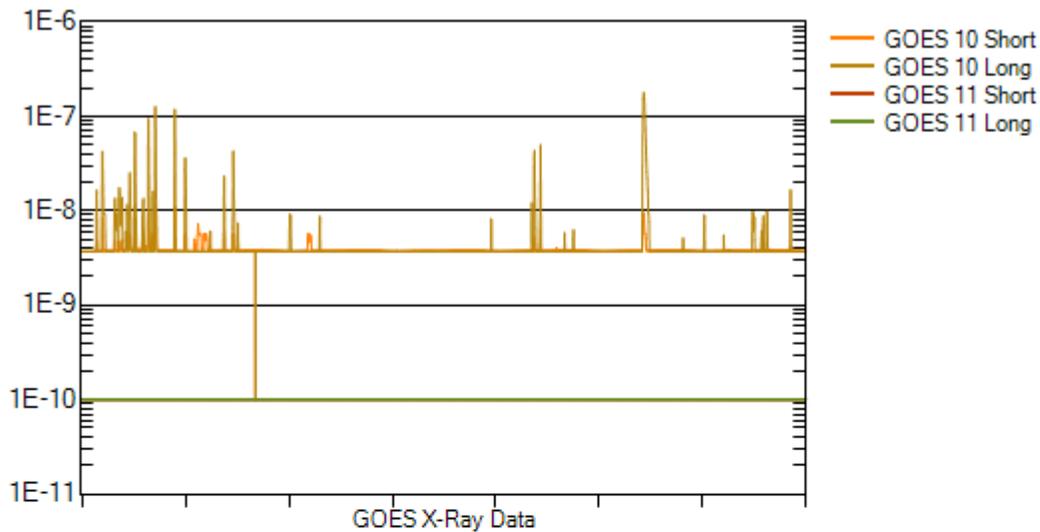
Electrons plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV at GOES-12 (W075).

Hp plot contains the five minute averaged magnetic field H - component in nanoteslas (nT) as measured by GOES-12. The H component is parallel to the spin axis of the satellite, which is nearly parallel to the Earth's rotation axis.

Kp plot contains the estimated planetary 3-hour K-index (derived by the Air Force Weather Agency) in real time from magnetometers at Meanook, Canada; Sitka, AK; Glenlea, Canada; St. Johns, Canada; Ottawa, Canada; Newport, WA; Fredericksburg, VA; Boulder, CO; Fresno, CA and Hartland, UK. These data are made available through cooperation from the Geological Survey of Canada (GSC), British Geological Survey (BGS) and the US Geological Survey. These may differ from the final Kp values derived from a more extensive network of magnetometers.

The data included here are those now available in real time at the SEC and are incomplete in that they do not include the full set of parameters and energy ranges known to cause satellite operating anomalies. The proton and electron fluxes and Kp are "global" parameters that are applicable to a first order approximation over large areas. H parallel is subject to more localized phenomena and the measurements generally are applicable to within a few degrees of longitude of the measuring satellite.





Weekly GOES Satellite X-ray and Proton Plots

X-ray plot contains five-minute averaged x-ray flux (watts/m^2) as measured by GOES 10 (W060) and GOES 11 (W135) in two wavelength bands, .05 - .4 and .1 - .8 nm. The letters A, B, C, M and X refer to x-ray event levels for the .1 - .8 nm band.

Proton plot contains the five-minute averaged integral proton flux ($\text{protons/cm}^2\text{-sec-sr}$) as measured by GOES-11 (W135) for each of the energy thresholds: >1, >10, >30 and >100 MeV. P10 event threshold is 10 pfu ($\text{protons/cm}^2\text{-sec-sr}$) at greater than 10 MeV.

